FMC Corporation

Work Plan to Conduct the Feasibility Study for Viscose Basins 1-8, the New Landfill, and the WWTP Closure (OU 10)

Avtex Fibers Superfund Site
Front Royal, Virginia

2 August 2000

Environmental Resources Management
2666 Riva Road, Suite 200
Annapolis, Maryland 21401

ERM

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1.0 INTRODUCTION

1.1 PURPOSE

FMC Corporation (FMC) has prepared this Work Plan to conduct the Feasibility Study (FS) for Operable Unit (OU) 10 for the Avtex Fibers Superfund Site, Front Royal, Virginia (Site). As defined in Paragraph 4 of the Consent Decree between FMC and the United States Environmental Protection Agency (EPA) for the Site, OU 10 consists of Viscose Basins (VB) 1 through 8, the New Landfill, and the Wastewater Treatment Plant (WWTP) closure (Figure 1). This FS Work Plan is provided to EPA pursuant to Section No. VIII of "Administrative Order on Consent for the Remedial Investigation/ Feasibility Study, Avtex Fibers - Front Royal, Inc. Site, FMC Corporation, April 3, 1993, Docket No. III-93-14-DC, as revised. This Work Plan was developed as a supplement to the RI/FS Work Plan prepared by the U. S. Environmental Protection Agency (EPA), dated February 1993. The purpose of this FS Work Plan is to provide a plan to identify and evaluate technically feasible remedial alternatives for the areas of the Site included under OU 10.

Once this Work Plan is implemented, the FS for OU 10 will identify the Remedial Action Objectives (RAOs) for each of the units and the Applicable and Relevant or Appropriate Requirements (ARARs) that pertain to the remediation of each unit. The FS will also identify and evaluate remedial action alternatives to address closure of VB 1-8, the New Landfill, and the WWTP.

1.2 PREVIOUS WORK

Three reports provide a basis for performing the FS for the closure of VB 1-8, the New Landfill, and the WWTP:

- *Remedial Investigation Summary Report, Avtex Fibers Superfund Site, Front Royal, Virginia,* prepared by Environmental Resources Management, Inc. for FMC, August 1994;
- *Draft Baseline Human Health Risk Assessment for the Avtex Fibers Superfund Site,* Front Royal, Virginia, prepared by Gradient Corporation for FMC, December 1999; and
- *Final Ecological Risk Assessment, Avtex Fibers Site, Front Royal, Warren County, Virginia,* prepared by the U.S. EPA Environmental Response Team Center, Office of Emergency and Remedial Response, February 1999.

Additionally, drilling, sampling and analytical data for the units collected by ERM during the Remedial Investigation (RI) in 1993 and 1994 will be used to prepare the FS.

1.3 *WORK PLAN ORGANIZATION*

The remainder of this FS Work Plan is organized as follows:

- *Section 2.0 - Conceptual Approach.* This section summarizes key information on each of the units being addressed by the FS and describes the general approach for conducting the FS for each unit;
- *Section 3.0 - Scope of Work.* This section provides a detailed description of the tasks to be completed during preparation of the FS; and
- *Section 4.0 - Project Management.* This section identifies the project team for the FS, and presents the anticipated schedule for completion of the FS.

This Work Plan also contains one attachment; Attachment A- Draft Outline for the OU-10 FS Report.

2.0 CONCEPTUAL APPROACH

2.1 VISCOSE BASINS 1-8

2.1.1 Background

VB 1-8 were investigated during the RI conducted in 1993 and 1994. The estimated total volume of viscose sludge in VB 1-8 is approximately 527,000 cubic yards. The physical configuration of VB 1-8 consists of viscose sludge and off-specification rayon yarn overlying a semi-continuous layer of natural soil, with soil berms surrounding some of the basins, and an approximate two-foot thick layer of soil covering the viscose sludge. The thickness of the viscose sludge in VB 1-8 ranges from 5 to 27 feet. VB 4, 5 and 6 also contain landfilled solid waste material derived from the plant that was placed on top of viscose waste and covered with soil. As reported in EPA's 1993 RI/FS Work Plan, the waste material consisted of demolition and construction debris, WWTP lime grit, air-dried sanitary sludge, off-spec crumb, and unprocessed fiber. Leachate seeps are present along the north side of VB 4, 5 and 6. A seep is also present on the west side of VB 7 that discharges to the existing wastewater treatment plant (WWTP).

The nature and extent of site contaminants within the basins, adjacent seeps and in the underlying ground water were characterized for VB 1-8 during the RI. A total of 24 borings were advanced into the eight basins and samples were collected from the borings. With the exception of a limited number of samples from VB 5 and 7, carbon disulfide concentrations in the sludge in VB 1-8 ranged from below detection limits to 460 micrograms per kilogram (µg/kg). The ground water quality data obtained during the RI from monitoring wells hydraulically cross-gradient and downgradient of VB 1-8 indicate that the viscose sludge in these basins is not a primary source of contaminants to ground water. Water quality data from seeps emanating from VB 4, 5, 6, and 7 indicate the presence of trace concentrations of organics and metals in the leachate.

Two hydrogeologic conditions appear to minimize the potential impact of VB 1-8 leachate on ground water quality in the vicinity of these basins. A semi-continuous soil layer serves as a barrier to vertical migration of contaminants from the basins into ground water. Also, the water table is beneath the bottom of these basins, which indicates the sludge is not saturated and does not have direct hydraulic communication with ground water. The presence of the seeps along the north side of VB 4, 5 and 6 also

tends to support this conceptual model that soils beneath these basins serve as a barrier to prevent vertical migration of constituents of concern from the overlying viscose sludge into ground water.

The site-wide human health risk assessment (*Draft Baseline Human Health Risk Assessment for the Avtex Fibers Superfund Site, Front Royal, Virginia,* Gradient Corporation, December 1999) did not evaluate the direct contact risk to human health for VBs 1-8 because concentrations of site contaminants in these basins are very low, and the soil cover prevents direct contact with constituents of concern associated with the viscose sludge. As a result of the soil cover, there is no direct contact risk. Further, the ecological risk assessment prepared by EPA did not identify any unacceptable risk to ecological resources associated with VB 1-8.

2.1.2 *Approach*

The existing data collected during the RI for VB 1-8 are considered adequate to identify and evaluate remedial technologies and alternatives that are protective of human health and the environment and comply with ARARs. One data gap that needs to be filled is to update the ground water quality data in and around VB 1-8. FMC will collect and analyze 13 ground water samples from overburden and shallow bedrock wells in the areas upgradient, cross-gradient and downgradient (down strike in bedrock) of VB 1-8, and incorporate the findings into the FS Report.

The FS for VB 1-8 will be performed in accordance with the scope of work presented in Section 3.0. Compliance with ARARs will be the driver for selection of a remedy because there are no unacceptable risks to human health or the environment associated with VB 1-8. The primary ARAR that will influence the selection of a final remedy for VB 1-8 will be the requirements set forth in the *Virginia Solid Waste Management Regulations* (VSWMR) (9 VAC 20-80).

In accordance with EPA's RI/FS guidance document (*Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA,* EPA/540/G-89/004, October 1988), in those instances where the baseline risk assessment indicates that a site poses little or no threat to human health or the environment, the FS should be scaled down as appropriate. The FS will be scaled down to include a very limited number of potentially applicable general response actions and process technology options. The general response actions to be evaluated in the FS are anticipated to consist of the following:

1. No further action;
2. Excavate and dispose of the viscose waste off-site and complete a "clean closure" of the area; and

3. Enhance the existing covers of the basins to ensure these comply with the requirements of the VSWMR (i.e., include additional soil cover, compact the cover, grading, and leachate collection and treatment).

Identification and evaluation of alternatives to address long-term treatment of leachate will be included in the FS. Treatment approaches must adequately address both quality and odor concerns, and be consistent with the proposed future recreational land use for the area around the basins. Treatment technologies that will be considered include passive treatment using constructed wetlands and treatment trenches, or active treatment using physical (e.g., filtration or adsorption onto activated carbon), biological, or chemical methods (e.g., hydrogen peroxide).

2.2 *NEW LANDFILL*

2.2.1 *Background*

The New Landfill was constructed above grade as a "valley fill" type of landfill with an underlying leachate collection system. The total estimated volume of material contained in the landfill is 54,000 cubic yards. On the west side, the landfill is at grade, but on the north, south and east sides, the fill area is above grade and slopes toward lower elevations. The materials in the landfill are not covered with soil and are exposed. The landfill has an underdrain leachate collection system that conveys leachate to SB-1 via laterals under the cells that connect to a header pipe which discharges to the NCA-4 manhole (Figure 1). The leachate is conveyed from NCA-4 to NCA-5 and NCA-6, where it discharges to a ditch that flows into SB-1. Material disposed in the landfill includes solidified viscose, off-specification rayon yarn, construction debris, and miscellaneous debris from the manufacturing plant.

The nature and extent of site contaminants within the landfill, adjacent sediments and in the underlying ground water have been adequately characterized during the RI. Surface soil and sediment samples were collected from the landfill and adjacent area. Organic compounds (primarily polycyclic aromatic hydrocarbons (PAHs), bis(2-ethylhexyl)phthalate, and phenols) and metals (primarily arsenic, cadmium, chromium, lead and zinc) were detected in surface samples associated with the landfill. Analytical results for ground water samples from monitoring wells downgradient of the landfill show only trace to low concentrations of carbon disulfide, arsenic and zinc in ground water. The ground water results for the downgradient monitoring wells indicate that constituents detected in the landfill are not leaching into ground

water. These findings indicate that the leachate collection system is effective in preventing adverse impacts to ground water from leachate.

As reported in EPA's 1993 RI/FS Work Plan, solid process wastes were placed in the landfill between 1983 and 1989. The landfill was a solid waste management unit regulated by Commonwealth of Virginia Permit No. 357. The VSWMR is directly applicable to the closure of the landfill because it was a permitted solid waste management unit.

2.2.2 *Approach*

The existing data collected during the RI for the New Landfill are considered adequate to identify and evaluate remedial technologies and alternatives that are protective of human health and the environment and comply with ARARs. One data gap that needs to be filled is to update the ground water quality data downgradient of the New Landfill. FMC will collect and analyze ground water samples from two overburden wells in the area downgradient of the New Landfill, and incorporate the findings into the FS Report.

The FS for the New Landfill will be performed in accordance with the scope of work presented in Section 3.0. Compliance with the VSWMR (9 VAC 20-80) will be the driver for selection of a final remedy because the landfill was a permitted unit. In accordance with EPA guidance, the FS will be scaled down to include a very limited number of potentially applicable general response actions and process technology options. The general response actions to be evaluated in the FS are anticipated to consist of the following:

1. No further action;
2. Excavate and dispose of the landfill waste off-site and complete "clean closure" of the area; and
3. Close the landfill to comply with the requirements of the VSWMR (i.e., include additional soil cover, grading, and leachate collection and treatment).

To address leachate collection and treatment for the third general response action listed above, an evaluation of the design and efficacy of the existing treatment system will be required. This evaluation will include locating and reviewing design drawings and/or documents that may exist. The quality and quantity of leachate being captured by the existing leachate collection system will also be evaluated to provide information for the detailed analysis of alternatives. Identification and evaluation of alternatives to address long-term treatment of leachate will be included in the FS. Treatment approaches must adequately address

both quality and odor concerns, and be consistent with the proposed future recreational land use for the area around the landfill. Treatment technologies that will be considered include passive treatment using constructed wetlands and treatment trenches, or active treatment using physical (e.g., filtration or adsorption onto activated carbon), biological, or chemical methods (e.g., hydrogen peroxide).

2.3 *WWTP CLOSURE*

2.3.1 *Background*

The WWTP (Figure 1) consists of the following components:

- Concrete basins and impoundments, including the no. 1 and no. 2 treatment chambers, connecting concrete trough between the chambers, primary clarifier, cyclator, trickling filter, north and south aeration basins, north and south final clarifiers, sludge thickener and digester, IMHOFF tank, sludge drying beds, transformer building, concrete flumes, the Parshall flume, and other appurtenances;
- Equipment and piping, including pumps and mixers; and
- Buildings, including the laboratory, compressor room, old lime unloading silo, lime slaker no.1, boiler room, maintenance shop, and brown storage building.

At the completion of the remediation of the entire Site, these components will need to be decontaminated and demolished, and the below grade structures filled or graded out of existence to prevent ponding of water. Sludges that remain at the end of WWTP operations will need to be removed and disposed off site. The concrete surfaces will need to be decontaminated to the extent that the demolition debris can be considered to be non-hazardous solid waste.

The alternatives in the FS will address decontamination, demolition and disposition of the components. Characterization of the nature and extent of site contaminants within the WWTP is not required to conduct the evaluation of these alternatives. Therefore, the FS will not discuss the nature and extent of potential contamination in the WWTP. The WWTP components may need to be characterized chemically before or after decontamination and disposition of the debris. These data will be collected as part of the remedial design/remedial action phase.

2.3.2 *Approach*

The FS for the WWTP will be performed in accordance with the scope of work presented in Section 3.0. No additional data are needed to perform the FS for the WWTP closure. In accordance with EPA guidance, the FS will be scaled down to include a very limited number of potentially applicable general response actions. The general response actions to be evaluated in the FS are anticipated to be:

1. No further action; and
2. Decontamination and demolition of above grade structures, addressing any subgrade contamination, and demolishing, backfilling or regrading of subgrade structures to prevent ponding of water.

3.0 SCOPE OF WORK

3.1 TASK 1 - GROUND WATER SAMPLING AND ANALYSIS

FMC will execute the Field Sampling and Analysis Plan (FSAP) provided in Appendix A to the OU-7 Feasibility Study Work Plan (prepared by Exponent) to provide an update of the ground water quality data in the areas in and around VB 1-8 and the New Landfill. During one sampling event conducted in July and August 2000, nineteen (19) samples will be collected from the following existing and new monitoring wells (see Figure 2 for well locations):

- Overburden wells 004, 017, 026, MW-7, MW-8, MW-11, and MW-12; and
- Bedrock wells 104, 117, 118, 119, 120, MW-4, MW-5 and GM-4 (or replacement for GM-4), GM-5, 130, 132 and 232 (wells 130, 132 and 232 were installed in July 2000).

The well purging, sampling and analytical procedures associated with the sampling of the OU-10 wells are described in the Exponent final FSAP dated 26 July 2000.

The data generated from the sampling of the 19 wells will be validated in accordance with the Region III Modifications to the National Functional Guidelines for Inorganic Analyses (April 1993) and the Region III Modifications to the National Guidelines for Organic Analyses (April 1994).

3.2 TASK 2 - DEVELOPMENT OF RAOs AND IDENTIFICATION OF ARARs

Section 121(d) of CERCLA, as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the NCP (40 CFR Part 300), require that remedial actions developed for a site meet the following requirements:

- The remedial action must be protective of human health and the environment; and
- The remedial action must comply with all ARARs, unless grounds for invoking a waiver of ARARs are provided.

The primary objective of the RI/FS process is to ensure protection of human health and the environment and compliance with ARARs. Each remedial alternative developed by the FS process must achieve these two threshold RAOs to be considered as a potential remedy for the Site. The initial task of the FS will be to develop appropriate RAOs (including any appropriate RAOs in addition to the threshold objectives) and identify the ARARs for each of the units (i.e., VB 1-8 and the New Landfill).

ARARs for this FS will be similar to those that have already been established for the Site (reference the EPA document titled *Removal Action Memorandum for the Non-Time-Critical Removal Action Basins,* dated 31 January 2000, and the FMC document titled *Site-wide Quality Assurance Project Plan, Avtex Fibers Superfund Site, Volume I of III,* dated 30 September 1999). Additionally, germane ARARs provided by VADEQ in a 22 February 2000 letter will be included in the FS. ARARs will be presented in the same format used by EPA for the January 2000 Action Memorandum for the Basin Closures.

In the FS, ARARs will be used in combination with the RAOs to identify and evaluate remedial alternatives for each unit. Also, compliance with established ARARs for the Site is considered as one of the remedial action evaluation criteria. A discussion of how the selected alternative meets the ARARs and whether the ARAR is applicable or relevant and appropriate will be presented for each unit. If appropriate, the CERCLA provisions for waiving ARARs will be considered, and the grounds for invoking such waivers will be provided.

ARARs that are identified will be grouped into the following three broad categories based on the manner in which these will be applied:

- Chemical-specific ARARs are requirements that set protective clean-up levels for the chemical or chemicals of concern, or indicate an acceptable level of risk or rate of release associated with a remedial action;
- Location-specific ARARs are requirements that restrict remedial actions based on the natural or man-made characteristics of the site or its immediate environment; and
- Action-specific ARARs are requirements that set controls or restrictions on the design, implementation, and performance levels of activities for a given remedy.

As defined in EPA guidance titled *CERCLA Compliance with other Laws* (EPA/540/G-89/006), the ARARs will be identified as being either "Applicable" or "Relevant and Appropriate." Other federal and state guidance documents, advisories, or criteria that are not generally

enforceable do not have the status of potential ARARs, but may be identified as criteria "to be considered" (TBC). TBCs may be used to develop remedies when specific ARARs do not exist for a chemical or situation, or when such ARARs are not sufficient to be protective. TBCs that may be applicable to each of the units will also be identified as appropriate.

3.3 *TASK 3 - IDENTIFICATION OF GENERAL RESPONSE ACTIONS AND TECHNOLOGY SCREENING*

3.3.1 *Identification of General Response Actions*

General response actions for each unit will be identified. In accordance with EPA guidance, a "No Further Action" general response action will be retained and carried forward through the detailed analysis of alternatives to serve as a baseline for determining what additional measures, if any, are necessary to meet the RAOs.

The general response actions for consideration with respect to remedial alternatives will likely consist of the following:

- No further action;
- Institutional controls;
- Grading/covering/containment/leachate control; and
- Excavation and disposal.

3.3.2 *Identification and Screening of Potential Remedial Technologies and Process Options*

The purpose of the technology identification and screening step of the FS will be to determine the applicability of a given technology prior to carrying that technology or process option forward for further evaluation. Based on the general response actions that are identified for each unit, possible remedial technologies for each of the general response actions will be identified and evaluated to determine the feasibility of incorporating these as components of the remedial alternatives to be evaluated during the detailed evaluation of alternatives. To scale down the FS, the identification of technologies and process options will be focused to include only those technologies with a reasonable potential to achieve the RAOs. The screening criteria used to determine appropriate technologies to be retained for further evaluation will be effectiveness, implementability, and cost in accordance with EPA's RI/FS guidance (October 1988).

The evaluation of the effectiveness of each technology will focus on whether the technology will achieve the RAOs and applicable ARARs. Evaluation of the implementability of each technology will consider the technical and administrative feasibility of implementing the technology or process option with respect to site-specific conditions and constraints for each unit. The evaluation of cost at this point in the FS will be based on the order of magnitude of the relative costs for each technology being considered to determine which technologies would be cost-effective. At this stage of the FS process, the costs will be evaluated based on engineering judgement for relative construction and operations and maintenance (O&M) costs (i.e., whether costs are "low", "moderate" or "high"). Technologies determined to be potentially effective in achieving RAOs, feasible for implementation and also cost-effective will be retained and combined to develop potential remedial alternatives for further evaluation as final remedies for each unit.

3.4 *TASK 4 -DETAILED EVALUATION AND COMPARISON OF REMEDIAL ALTERNATIVES*

Remedial technologies and process options retained by the screening process will be assembled into remedial technologies for detailed evaluation of each alternative. A descriptive summary of each alternative will be prepared that will include all of the key components of the alternative, including institutional controls and post-closure maintenance and monitoring. As required by CERCLA, the remedial alternatives for each of the units will be subjected to detailed evaluation using the nine specific evaluation criteria identified in the NCP listed below.

- Threshold criteria:
  - *Overall Protection of Human Health and the Environment* - Protectiveness of human health and the environment will be based on an evaluation of each alternative's ability to meet the RAOs for each of the units. This evaluation will include an estimate of risks to human health both during implementation (i.e., short-term risks) and following implementation (i.e., long-term risks) of each alternative. A qualitative evaluation of potential risks will be used for the evaluation and comparison of alternatives.
  - *Compliance with Potential ARARs* - Each alternative will be evaluated to determine how it complies with or can be modified to comply with potential Federal and State ARARs.

- Primary balancing criteria:

— *Long-term Effectiveness and Permanence* - This criterion requires an evaluation of the potential long-term risks remaining after implementation of the remedy. Issues to be addressed for each alternative include the magnitude of long-term risks, and the long-term reliability of the management controls (e.g., deed restrictions).

— *Reduction of Toxicity, Mobility or Volume* - This criterion will address the CERCLA preference for remedial alternatives that permanently and significantly reduce the mobility, toxicity, or volume of hazardous substances through treatment.

— *Short-Term Effectiveness* - The evaluation of short-term effectiveness will be based on the protectiveness of human health achieved during the construction and implementation phase of the remedial action. Key factors to be considered by this evaluation include risk to local residents, risk to site workers and the community, and the time required to complete on-site construction work.

— *Implementability* - The implementability of each alternative will be evaluated based on its technical and administrative feasibility, and the availability of services and materials. Technical feasibility takes into consideration difficulties that may be encountered during construction and operation, the reliability of the technologies that comprise the alternative, and the ability to monitor the effectiveness of a remedy. Administrative feasibility factors include coordination with other offices and agencies, such as the ability to obtain permits or approvals for various on-site and off-site activities. Availability of services and materials includes the necessary equipment, specialists, materials, and off-site treatment, storage, and disposal services and capacities. The overall implementation schedule estimated for each alternative will also considered.

— *Cost* - Evaluation of the cost of each alternative will include the estimation of capital costs, operation and maintenance (O&M) costs, and the net present worth. These estimates will include a contingency, and a 30-year O&M period. Capital costs consist of the direct costs for items such as labor, materials, equipment, land, and services, plus the indirect costs related to engineering, management, permits, startup, and contingencies. O&M costs include operating labor, maintenance, auxiliary materials and energy, monitoring, inspection, and periodic site reviews. The present worth cost will provide a means of comparing the total

costs of different alternatives with different O&M requirements and duration.

- Modifying criteria:
  - *State Acceptance* - The FS will address state acceptance through the input obtained from VADEQ during their review and approval of the FS.
  - *Community Acceptance* - Formal evaluation of the community responses and/or concerns regarding the alternatives will be made based on public comments received through public meetings and written comments on EPA's proposed plan. However, the FS will address informally community acceptance of an alternative based its compatibility with the future use plan for the Site.

After each alternative for each of the units (i.e., VB 1-8, New Landfill, and WWTP) is individually evaluated relative to the nine NCP criteria, a comparative analysis will be performed to evaluate the relative performance of each alternative in relation to each of the nine evaluation criteria. This step will be performed to identify the advantages and disadvantages of each alternative relative to one another for the alternatives assembled for each of the units. Based on the results of the comparative analysis, a preferred remedial alternative for each of the units will be identified.

3.5 *TASK 5 - PREPARATION OF THE FS REPORT*

An FS Report (Report) will be prepared in a format consistent with the EPA RI/FS guidance (*Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA*, EPA/540/G-89/004, October 1988). The anticipated outline for the report is provided as Attachment A. The Report is envisioned to contain the following:

- *Unit Description* - The physical attributes of each unit, such as areas and volumes and a description of engineered features, will be described and presented graphically as appropriate.
- *Nature and Extent of Contamination* - A summary of the nature and extent of contamination associated with each unit will be presented. The report will include a compilation and evaluation of the previously collected and updated ground water quality data in and around VB 1-8 and the New Landfill.
- *Risk Evaluation* - A summary of the human health and ecological risk assessment findings will be presented for each of the units.

- *Remedial Action Objectives* – The remedial action objectives for each of the units addressed by the FS will be stated.
- *Identification of ARARs* – Potential location-specific, chemical-specific, and action-specific ARARs will be identified, and an indication will be provided as to whether the ARAR is applicable, relevant and appropriate, or to be considered.
- *Description and Detailed Analysis of Remedial Alternatives* – A limited number of appropriate alternatives will be identified for each of the units addressed by the FS, and each alternative will be evaluated based on EPA's nine evaluation criteria.
- *Comparison of Alternatives* – The remedial alternatives for each of the units will be compared based on the nine evaluation criteria.
- *Recommended Alternatives* – The alternative for each of the units that best satisfies the evaluation criteria will be identified.
- *Remedial Action Schedule* – The general schedule to implement the recommended remedial alternatives for each areas will be presented.

4.0 PROJECT MANAGEMENT

4.1 PROJECT TEAM

Key roles of the team that will perform the FS described herein are as follows:

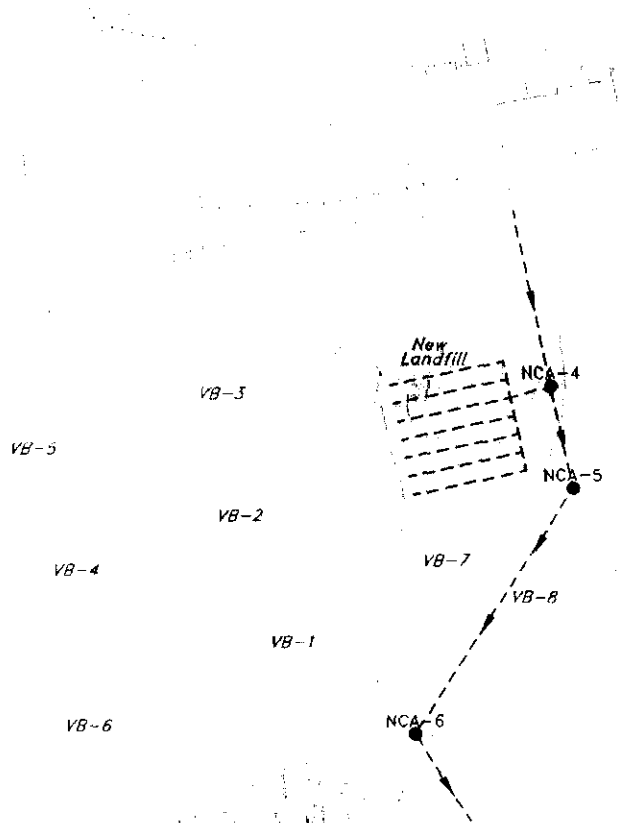
- The **FMC Project Coordinator** is Mr. William Cutler, who will have direct responsibility for the execution of the work in accordance with this Work Plan.
- The **FS Contractor** is Environmental Resources Management (ERM). ERM will be responsible for completing the FS in accordance with this Work Plan. Mr. Robert Keating will be the ERM Project Manager, and Mr. David Collins will be the ERM Task Manager responsible for completing the FS. Other ERM personnel will be incorporated into the project as appropriate to complete the FS.

4.2 SCHEDULE

Figure 3 presents the updated schedule for completing the OU-10 FS. The schedule shows that the FS report will be submitted approximately 120 days of the date when FMC receives EPA's written approval of this FS Work Plan. Progress and schedule updates will be provided in the monthly report to EPA.

Figures

Figure 1
Locations of Viscose Basins 1-8, New Landfill and Wastewater Treatment Plant
Avtex Fibers Superfund Site
Front Royal, Virginia



Legend

- Viscose Basins 1-8
- New Landfill
- Wastewater Treatment Plant

N

450 225 0 450

Scale in Feet

AR302342

Figure 2
Monitoring Well Network for
Viscose Basins 1 - 8 and New Landfill
Avtex Fibers Superfund Site
Front Royal, Virginia

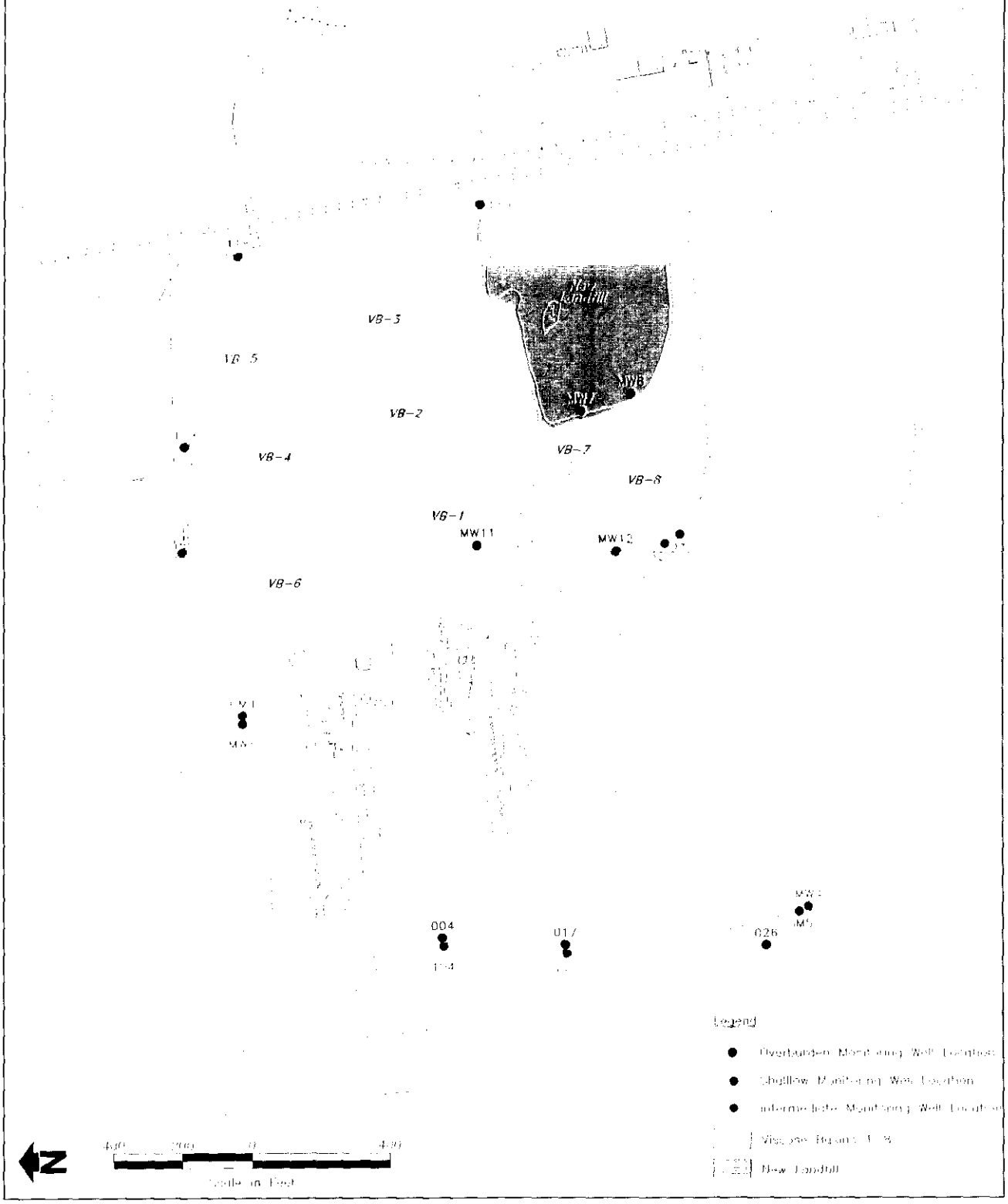
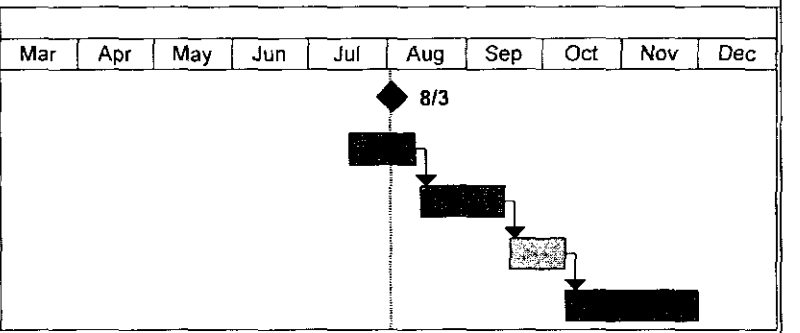


Figure 3 Schedule for the OU-10 Feasibility Study

ID	Task Name	Duration	Start	Finish
1	EPA Approves Final OU-10 FS Work Plan	0 days	Thu 8/3/00	Thu 8/3/00
2	Collect Ground Water Samples	20 days	Mon 7/17/00	Fri 8/11/00
3	Laboratory Analysis	25 days	Mon 8/14/00	Fri 9/15/00
4	Data Validation	16 days	Mon 9/18/00	Mon 10/9/00
5	Prepare FS Report	38 days	Tue 10/10/00	Thu 11/30/00



AR302344

Date: Wed 8/2/00

Task		Summary		Rolled Up Progress	
Split		Rolled Up Task		External Tasks	
Progress		Rolled Up Split		Project Summary	
Milestone		Rolled Up Milestone			

Attachment A
Draft Outline for the OU 10
FS Report

DRAFT OUTLINE FOR THE OU 10 FS REPORT

EXECUTIVE SUMMARY

1.0 INTRODUCTION

- 1.1 Purpose
- 1.2 FS Organization

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  - 2.1.2 Source, Nature and Extent of Contamination
  - 2.1.3 Streamlined Risk Evaluation
- 2.2 New Landfill
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- 2.3 WWTP Closure
  - 2.3.1 Unit Description and Background

3.0 IDENTIFICATION OF REMEDIAL ACTION OBJECTIVES

- 3.1 ARAR Identification
  - 3.1.1 Chemical-Specific
  - 3.1.2 Location-Specific
  - 3.1.3 Action-Specific
- 3.2 Remedial Action Objectives

4.0 IDENTIFICATION AND ANALYSIS OF REMEDIAL ALTERNATIVES

- 4.1 VBs 1-8 - Detailed and Comparative Analysis of Alternatives

  Will include a description of how the alternatives are assembled. Each of the alternatives will be evaluated in detail based on the nine evaluation criteria, followed by a comparative analysis of all the alternatives
  - 4.1.1 Alternative 1 - No Further Action
  - 4.1.2 Alternative 2 - Excavation and Off-site Disposal of Viscose Waste